

# **SUMMARY OF THE CALIFORNIA DRINKING WATER SOURCE ASSESSMENT AND PROTECTION PROGRAM**

## **Introduction**

This document is a summary of California's Drinking Water Source Assessment and Protection (DWSAP) Program. The Department of Health Services' (DHS') Division of Drinking Water and Environmental Management is the lead agency for developing and implementing the DWSAP Program.

The drinking water source assessment is the first step in the development of a complete drinking water source protection program. The assessment includes: A delineation of the area around a drinking water source through which contaminants might move and reach that drinking water supply; an inventory of possible contaminating activities (PCAs) that might lead to the release of microbiological or chemical contaminants within the delineated area; and a determination of the PCAs to which the drinking water source is most vulnerable.

The DWSAP program document describes DHS procedures for conducting drinking water source assessments. The document conveys the goals and objectives that DHS seeks to accomplish with the DWSAP program, along with methods that are technically appropriate and easily understood. Section numbers and appendices shown in this summary refer to the DWSAP program document:

The DWSAP program document can be viewed and downloaded at the DHS Internet website:  
<http://www.dhs.cahwnet.gov/ps/ddwem/>

A paper copy of the document may be requested by contacting:

Dept. of Health Services, Division of Drinking Water and Environmental Management  
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## **Number of Sources Statewide/Resources for Assessments**

There are approximately 16,000 active drinking water sources in California for public water systems, and several thousand standby and inactive sources. The resources available for the assessments are approximately \$7.5 million from the federal Drinking Water State Revolving Fund, or roughly a few hundred dollars per source. Although DHS is responsible for performing these assessments, it is anticipated that some public water systems will perform their own assessments. In such cases, the systems will need to conduct assessments in conformance with the DHS procedures.

## Schedule and Timeline

DHS submitted the DWSAP program in January and received US EPA endorsement in April. Final approval by US EPA will occur in November 1999. DHS is responsible for the completion of all assessments by May 2003.

Those water systems that plan to conduct their own assessments will need to notify DHS by December 31, 2000, submit a progress report to DHS no later than February 2002, and submit the final assessment to DHS no later than December 31, 2002.

## Minimum Components of Drinking Water Source Assessments

### ✓ Location of the Drinking Water Source. Section 9.1 and Appendix A or H.

Determine the location (latitude, longitude) of the surface water intake or ground water well by a global positioning system (GPS) with accuracy of 25 meters, or by another method with equivalent accuracy. An interim location may be obtained through use of a USGS quad map (7.5 minute series) or another method with similar accuracy.

### ✓ Delineation of Source Area and Protection Zones.

#### Surface Water Source Section 6.1, and Appendix B.

Identify watershed boundaries as the source area. Zones are not required, but if they are established, the distances listed below may be used. For large water bodies, the zones may be limited to the area within an appropriate travel time distance from the intake.

400 feet from banks of reservoir, or primary stream  
200 feet from tributaries  
2,500 feet from intakes

#### Ground Water Source Section 6.2 and Appendix I.

Identify recharge area boundaries (if known) as the source area. Then delineate protection zones (zones are required for ground water) based on three different times-of-travel (the time for ground water to travel from a point in an aquifer to a pumping well): Zone A (2-year), Zone B5 (5-year) and Zone B10 (10-year).

#### Minimum acceptable method for determining zones:

**Calculated fixed radius (CFR) method.** This method uses an equation to determine the radius of a circle about the well for a given time-of-travel. With this method, the three zones are concentric circles around the well. For sources located in fractured rock the size of the zones is increased by 50%.

If the direction of groundwater flow is known the **Modified CFR method** may be used. This method uses the radii determined with the CFR method, but shifts the location of each circle upgradient by  $\frac{1}{2}$  the radius.

Minimum distances of zones:

The minimum radii of zones, determined from the CFR equation, except for wells in fractured rock aquifers, are:

600 feet for Zone A (microbiological)  
1,000 feet for Zone B5 (chemical)  
1,500 feet for Zone B10 (chemical)

For fractured rock aquifers, the minimum radii are:

900 feet for Zone A (microbiological)  
1,500 feet for Zone B5 (chemical)  
2,250 feet for Zone B10 (chemical)

Delineation methods more sophisticated than CFR or modified CFR are not subject to minimum distances.

✓ **Physical Barrier Effectiveness (PBE) Checklist.** Section 8.2.1 and Appendix C or J.

Evaluate the drinking water source and its site characteristics in terms of the effectiveness of the physical barriers in preventing contaminants from reaching the source. Complete form and make determination of the effectiveness of the source's physical barriers to contamination, based on geology and hydrogeologic considerations: Low, Moderate, or High.

For ground water sources, the PBE evaluation uses information from the Well Data Sheet.

✓ **Inventory of Possible Contaminating Activities (PCAs).** Section 7.0 and Appendix D or K.

Use checklists to identify the types of PCAs that occur in the source area (if identified) and in zones, if zones are established (zones are required for ground water sources, optional for surface water sources).

✓ **Vulnerability Ranking.** Sections 8.0 and Appendix F or M.

Evaluate each PCA in terms of its risk ranking, location (zone), and the Physical Barrier Effectiveness of the source. Prioritize PCAs to identify those to which the source is most vulnerable. Prepare prioritized listing of PCAs that identifies the PCAs to which the source is most vulnerable, including those associated with contaminants detected in the water supply.

✓ **Assessment Map.** Section 9.0 and Appendix G or N.

Prepare an assessment map (based on a USGS quadrangle map, 7.5 minutes series) that shows: location of the drinking water source, source area, and zones. Attach the prioritized listing of PCAs with the area or zone(s) in which they occur, indicating to which PCAs the source is most vulnerable.

✓ **Assessment Summary.** Section 9.5 and Appendix G or N.

Complete the assessment and prepare a summary. A completed assessment includes the assessment map, delineation calculations, physical barrier effectiveness checklists, PCA inventory forms, vulnerability ranking, and other information presented on the checklist in Appendix G or N. The summary includes a brief description of the assessment, the assessment map, the vulnerability ranking, and a vulnerability summary. The vulnerability summary is a narrative description of the PCAs to which the source is most vulnerable.

✓ **Public Notification.** Section 9.6 and Appendix G or N.

Pursuant to the Consumer Confidence Report regulations, the water system must include the following information on the assessment in its annual consumer confidence report, regardless of who completes the assessment:

- A statement that a drinking water source assessment has been conducted.
- The date of the assessment.
- Location where assessment is available for review (local DHS district office and, when feasible, at the public water system's office).
- A statement that a summary of the assessment can be mailed upon request.
- A vulnerability summary of the assessment identifying the PCAs to which the system is most vulnerable (written by the utility if it has completed its own assessment).
- A contact phone number.